

CLAIMS

1. A stent delivery system comprising:

5 a catheter;

a balloon operably attached to the catheter; and

a stent disposed on the balloon;

a silane layer disposed on the stent; and

a coating disposed on the silane layer.

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2. The stent delivery system of claim 1 wherein the coating includes a therapeutic agent.

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3. The stent delivery system of claim 1 wherein the coating is a polymer.

4. The stent delivery system of claim 1 wherein the silane layer is selected from the group consisting of a monolayer, a multilayer, and a bulk phase layer.

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5. The stent delivery system of claim 1 wherein the stent is a stainless steel stent.

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6. A coated stent comprising:

a stent;

a silane layer disposed on the stent; and

a coating disposed on the silane layer.

7. The coated stent of claim 6 wherein the coating includes a therapeutic agent.
- 5 8. The coated stent of claim 6 wherein the coating is a polymer.
9. The coated stent of claim 6 wherein the silane layer is selected from the group consisting of a monolayer, a multilayer, and a bulk phase layer.
- 10 10. The coated stent of claim 6 wherein the stent is a stainless steel stent.
11. A method for producing a stent comprising:
15 providing a stent;
mixing silane with alcohol to form a silane solution;
applying the silane solution to the stent; and
curing the silane solution on the stent to form a silane layer.
12. The method of claim 11 further comprising applying a coating to the
20 silane layer.
13. The method of claim 12 wherein the coating includes a therapeutic agent.
- 25 14. The method of claim 12 wherein the coating is a polymer.
15. The method of claim 11 wherein the stent is a stainless steel stent.

16. The method of claim 11 wherein the silane is an amino silane.

17. The method of claim 11 wherein the silane is selected from the
5 group consisting of trimethoxysilylpropyl-diethylenetriamine;
3 aminopropyltrimethoxsilane; n-styrylmethyl 2 aminoethylamino propyl
trimethoxsilane; vinyl trimethoxsilane; methacryloxypropyltrimethoxsilane;
3-(n-styrylmethyl-2-aminoethylaminopropyltrimethoxsilane); and 3
(glycidoxypipropyl)-trimethoxsilane.

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18. The method of claim 11 wherein the alcohol is selected from the
group consisting of isopropyl alcohol, methyl alcohol, and ethyl alcohol.

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19. The method of claim 11 wherein mixing silane with alcohol to form a
silane solution further comprises mixing silane with alcohol to form a silane
solution of about 2 to 30 % silane.

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20. The method of claim 11 wherein mixing silane with alcohol to form a
silane solution further comprises mixing silane with alcohol to form a silane
solution of about 5% silane.

21. The method of claim 11 wherein applying the silane solution to the
stent further comprises dipping the stent in the silane solution.

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22. The method of claim 11 wherein applying the silane solution to the
stent further comprises spraying the stent with the silane solution.

23. The method of claim 11 wherein applying the silane solution to the stent further comprises applying the silane solution at a temperature between about 20 to 70 deg.C for a time of between about 1 and 60 minutes.

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24. The method of claim 11 wherein applying the silane solution to the stent further comprises applying the silane solution at a temperature of about 35 deg.C for a time of about 15 minutes.

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25. The method of claim 11 wherein curing the silane solution on the stent to form a silane layer further comprises curing the silane solution in an inert atmosphere.

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26. The method of claim 11 wherein curing the silane solution on the stent to form a silane layer further comprises curing the silane solution at a temperature between about 25 to 115 degrees C for a time of between about 1 to 24 hours.

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27. The method of claim 11 wherein curing the silane solution on the stent to form a silane layer further comprises curing the silane solution at a temperature of about 60 degrees C for a time of about 3 to 15 hours.

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28. A system for producing a stent comprising:
means for providing a stent;
means for mixing silane with alcohol to form a silane solution;
means for applying the silane solution to the stent; and
means for curing the silane solution on the stent to form a silane layer.

29. The system of claim 28 further comprising means for applying a coating to the silane layer.

5 30. The system of claim 28 wherein means for applying the silane solution to the stent further comprises means for dipping the stent in the silane solution.

10 31. The system of claim 28 wherein means for applying the silane solution to the stent further comprises means for spraying the stent with the silane solution.

15 32. The system of claim 28 wherein the means for curing the silane solution on the stent to form a silane layer further comprises means for curing the silane solution in an inert atmosphere.

20 33. A coated stent comprising:
a stainless steel stent;
an amino silane layer disposed on the stainless steel stent;
a polymer coating disposed on the amino silane layer, the polymer coating including a therapeutic agent.